Knowledge of the Law in the Big Data Age
G. Peruginelli and S. Faro (Eds.)

doi:10.3233/FAIA190011

Personalised Dissemination of Legal Information

Václav JANEČEK [1]
Faculty of Law, University of Oxford; St. Edmund Hall, Oxford (UK)

Abstract. A proper functioning of any legal system requires people to know the law. Our knowledge of the law, however, depends on how legal information are communicated. Currently, however legal information are communicated rather poorly. We are still missing opportunities that Big Data and algorithms offer in relation to how the law is published, disseminated, and accessed. This Chapter focuses on dissemination of legal information. It argues that we should strive for personalised dissemination. By highlighting and analysing examples from the history of legal publication, it argues that the shift to personalised dissemination of legal information does not pose a threat to the existing legal systems. Instead, it could enhance the overall efficiency and sustainability of our legal communication, increase our knowledge of the law, while reducing the total costs. The Chapter therefore makes a case for a new era in publication and communication of the law – the era of personalised dissemination of legal information.

Keywords. legal information, digitalised legal information, digital law, personalisation, dissemination, communication, legal sources, prehistory, history, hyperhistory, access, printing press, internet, big data analytics

1. Introduction

Modern digital societies are drowning in data that they cannot communicate. The online world is replete with data that are freely accessible, but it is increasingly difficult to retrieve the relevant information from those big datasets. Communication is not only about data transmissions, but also about information production and retrieval. Communication is about exchange of information. Access to data and dissemination of data, must therefore be not confused for access to information and dissemination of information.

Big Data and new analytic algorithms allow us to record, transmit, and newly also process and communicate information. The advertising business has already understood this, as we can witness everyday when we go online and are subject to targeted advertising. It may be true that thanks to new information and communication technologies (ICTs), the swamp of data is getting deeper and deeper, but it is also true that these ICTs are designed so as to not let us drown. ICTs and Big Data combined give us the ability to communicate data more efficiently and not get lost completely.

This includes communication of digitalised legal information. Knowledge of the law in the age of Big Data seems to be withering away precisely because laws are growing

[1] This Chapter builds partly on the Author's previous research [1].

into a big mass of legal data that we cannot communicate. We are sinking in digitalised legal information regardless that we often have free access to data about the law. We are failing at communicating legal information even though legal information are generally much more important than the omnipresent online commercials. Legal professionals may have some ICTs tools to access legal data and retrieve relevant legal information, but the producers of those legal information do not pay much attention to dissemination of any digitalised legal information. In other words, the law-makers struggle to disseminate the law.

The current situation is unhappy because people are expected to know the law and obey it although they cannot efficiently access the relevant legal information and although the law-makers do not bother to communicate the relevant legal information to them. On this front, Big Data and machine learning promises to be a game changer. It promises to facilitate a more efficient and sustainable communication of legal information, particularly as regards its dissemination. We live in a world where you often cannot find the relevant legal information, but where the digitalised legal information could find you. Why, then, do we not yet disseminate legal information in such a personalised manner? Why the law-makers do not communicate the relevant information directly to the addressees of those information, i.e. more efficiently? The standard objection is that we should not try fix things that are not broken, and the current system is not (yet) broken.

The fact that we are not yet drowned does not mean that we should not challenge the current model of publication and dissemination of legal information, provided that its functioning is not designed to prevent us from drowning eventually. My original claim in this Chapter is that there is a case for starting a new era of dissemination of legal information-personalised dissemination of legal information. I propose this solution as a variant that is both feasible and desirable.

The argument unfolds as follows. Section 2 highlights the challenges posed by the growing body of legal data. Section 3 shows why the way in which we have been addressing this challenge so far is and probably will remain unsuccessful. This suggest we should consider unlocking the hidden opportunities presented by new ICTs and Big Data. Section 4 argues we need not be worried to innovate the present models of publication and dissemination of legal information, because we have done it many times before. The history teaches us that revolutionary technologies regularly spur new model of legal publication and that they help increasing efficiency and sustainability of legal communication. Section 5 then discusses some of the apparent costs and benefits of the proposed innovation to conclude that the benefits are likely to outweigh the costs. In a long run, personalised dissemination of legal information therefore seems to be a promising way to make use of algorithms and Big Data as a force for good.

2. The Challenges Posed by the Growing Body of Legal Data

Do you know how many new legal acts or regulations could have applied to you since last year? If you lived in the European Union (EU) in 2018, it would be up to 92 entirely new directly applicable regulations and up to another 132 amendments to the already existing EU law in force[2]. This means that roughly three new regulations were enacted every five days last year. Suffice to add that apart from regulations there are many other

[2]EUR-Lex. *Legal Acts – Statistics (by type)*, 2019, https://perma.cc/2KUD-UG29.

types of legal sources that contain enforceable laws. Now, although these EU laws are freely available via the EUR-Lex online search engine, one has significant doubts about the size of the group out of the EU28's 511.8 million total population[3] that has even the slightest idea about what these regulations regulate. As a lawyer myself, for instance, I know only a fraction of them.

A simple question arises then as to how all the addressees of the EU regulations can comply with such laws if they do not know their content, let alone that those regulations exist. The growing body of legal data presents a significant challenge to our knowledge of the law. The more legal data we produce, the bigger the challenge. The paradox of digitisation in law then is that the more we try to digitise legal data and employ technologies to enhance access to law and justice, the more legal data we produce and efficiently complicate access to law and justice. Big legal data and our ability to obtain relevant legal information from them is one of the pressing issues of the digital societies.

Two obvious ways to meet the challenge are that people will either resign on ever acquiring the relevant legal knowledge or that they will pay massive amounts of money to legal specialists who will communicate the relevant knowledge to them. The first route casts doubts on the role of legal system and we will not discuss this variant. The second setting is, however, also unhappy. It is inefficient and unsustainable because members of society are pushed towards desirable behaviour by lawyers holding an imaginary carrot and stick, instead of them being sustainably educated and informed by relevant legal rules and standards (i.e. legal information). The EU regulations are only rarely discussed publicly – such as in the recent case of the General Data Protection Regulation (GDPR)[4] – and our society at large thus remains legally incompetent, oblivious or even misinformed. This clearly shows a problem with the current model of publication and dissemination of legal information.

3. The Hidden Opportunities of Big Data and Algorithms

The way in which we have addressed the problem so far is insufficient and is lagging behind the opportunities that algorithms and Big Data offer. Take, for instance, the overwhelmingly static model of dissemination of EU legal rules. Those rules are produced in the EU legislative bodies and published in a static journal that is freely available online via the EUR-Lex search engine: the e-OJ (electronic Official Journal of the European Union). The EU citizens who have Internet access and have sufficient personal incentives to learn some legal information can do so freely, provided that they will access actively the static publication platform and provided that they will be able to perform a relatively qualified search task. Alternatively, they can set up an alert system that will feed them with information about every new EU legal document.

In the present model, citizens have free access to legal information, but given the natural human laziness, it seems unlikely that ordinary people, i.e. non-specialists, would be actively searching for legal information in their free time or during their work. Instead, they would be most likely concerned with legal information only when they encounter

[3] Eurostat. *Population on 1 January 2018*, https://perma.cc/NN7P-F4CS.

[4] Regulation (EU) 2016/679 of the European Parliament and of the Council of 27 April 2016 on the protection of natural persons with regard to the processing of personal data and on the free movement of such data, and repealing Directive 95/46/EC (General Data Protection Regulation), OJ L 119/1, 4.5.2016.

some legal issue (usually presented to them as a legal issue by someone else). At that point, however, the legal issue would probably be so complicated that the non-specialist would still not be able to find the relevant information herself, regardless that her access to law is technically free.

The current system of communication of digitalised legal information is thus clearly underperforming. While access to digitised law is often free, access to legal information (let alone relevant legal information) is expensive. The issue is that non-specialist cannot efficiently access legal information themselves. People may know where they can find the laws and legal data, but they do not know where to look and how to interpret what they see. This seems partly caused by the growing body of freely accessible legal data, partly by the lack of expertise, and partly by the privatised use of expert legal systems by legal professionals. Let us discuss the latest element—the expert systems used by legal professionals.

Legal professionals are increasingly more reliant on new technologies that help them to find the relevant legal data and sometimes event to process the relevant legal information. In the modern era, the ICTs help legal professionals not only to record and transmit legal data, but also to process those data and retrieve legal information from them. These various 'legal information systems' (see, e.g., [2]; [3]) facilitate easier access to law and legal information by providing automated intelligent search engines, assistive predictions about legal information, and computing power that vastly outperforms humans, both specialists and non-specialists. The problem is that while investments in such technologies might be useful for legal professionals, they do not enhance the knowledge of the law by non-specialists. In fact, the increased use of ICTs by legal professionals might lead to gradual propertisation and privatisation of legal knowledge by those experts, because they could eventually represent a limited group of people who can efficiently access legal information. Accordingly, this development would increase the costs barrier when it comes to access to legal information by non-specialists.

Besides, even if we allowed everyone freely to use the expert legal systems to obtain the relevant information and if we built completely free information and AI-based advisory systems[5] [4], this will not address the issue of human laziness. It seem more likely to believe that people would have better knowledge of the law if it was communicated to them not only during legal disputes or via elementary social and educational standards. For the law to serve as an efficient tool to organise society, we should seek actually to increase everyone's knowledge of the law more actively.

In the light of this objective, the hidden opportunities presented by Big Data and analytic algorithms rest, in my view, on the other end of the communication channel. The true challenge is not how we enhance access to legal information, but how we enhance dissemination of legal information. The law-makers should start thinking anew about how to employ new technologies in order to communicate the law's content actively. Today's ICTs allow us to process legal data and legal information in a way that was not only impossible, but also unthinkable a decade ago, and it would thus be a missed opportunity if we only focused on how new technologies can help access the law and legal information.

There are, of course, other ways how to innovate the current model of publication of law [1]. For example, Big Data and new ICTs open up possibilities to personalise the law,

[5] See *Free Access to Law Movement*, http://www.fatlm.org/; *World Legal Information Institute*, http://www.worldlii.org/; *Legal Information Management Journal*.

i.e. to create a specific legal rule applicable to a specific person in a specific situation (e.g. [5]; [6]; [7]; [8]). Such bespoke tailoring of law could be a step forward, but the recent Cambridge Analytica scandal gave us a clear lesson that personalised dissemination of information (the so-called micro-targeting) can be an even more powerful tool because it facilitates efficient communication [9]. My proposition how to meet the challenge is therefore simple. I suggest that the future models of publication of law seek to employ Big Data and new ICTs to personalise dissemination of legal information.

4. The Times They Are a-Changin'

Although the suggested change might seem revolutionary, the history teaches us otherwise. If we look at the history of legal publication models, it seems that new ICTs have often spurred radical changes to how we public, access, and disseminate the law. Let me demonstrate this on some paradigmatic models of publication of legal information. We will see that the progress regarding publication models was often driven by efficiency and sustainability considerations and, therefore, that there is a good reason to adopt personalised dissemination of legal information, provided that such dissemination would increase the overall efficiency and sustainability of how the law is communicated.

The pre-historical era can be our starting point. Since long before people started recording legal information in writing, they used symbolic gestures and pronounced solemn words upon legally important transactions such as when concluding a contract, entering a marriage, etc. in order to mark the importance of the moment and to create at least an impression of the existing legal bond ([10], ch. 3). In such context, it was the witnesses in front of whom these gestures were performed and who thus testified the existence of such legal bond. In this sense, we can say that the witnesses acted as human recorders of relevant legal information, which made it slightly problematic in an environment where people could die easily and where life expectancy was very low. Legal information was thus only a short-term type of information and, on the top of it, it was not very transparent. Similarly, any superior societal authority, i.e. a powerful leader of a social group, who wanted to broadcast his or her own legal information could only rely on this inefficient model. So, for example, when someone got authoritatively punished for trespassing other's assets (e.g. for killing or stealing his life stock), the information about impermissibility of such trespass was only disseminated through stories and vivid experiences of those involved in the execution of the (usually very harsh and painful) physical punishment.

In the context of such unwritten, short-term, and highly volatile system of recording, transmitting and processing of legal information, the rise and implementation of writing as a new technique presented an immense progress. Hence, written records of legal rules and legal information were soon demanded as the new standard. In fact, "a few jurists have believed that paragraphs from the Code of Hammurabi express the obligation imposed by the king to fix in written form contracts (relating to marriage, herding, or tenant farming), or risk having them invalidated" ([10], p. 48). Not only did the invention of writing enable long-lasting access to legal information – e.g. by using clay tablets to record debts, transfers, and property claims in Old Babylonian kingdom ([10], p. 49) – but it also facilitated a more structured and centralised model of publication of legal information. The king could publish all the relevant legal information by a uniform method

that was in principle independent of the mortal human 'recorders' and 'interpreters'. One such method to which I will turn below was to set legal rules in stone pillars that were erected in public places.

The dividing line between prehistory and history was never crystal clear because prehistory and history, "prelaw and law, or world of rite and oath on one hand, world of writing on the other" ([10], p. 51) existed in parallel. These two eras were thus inextricably mixed, as for example Babylonian laws from the 20th to 17th century BC demonstrate ([10], p. 51). Accordingly, to speak of a prehistorical model of publication of legal information, we need to focus on its ahistorical features. For the purposes of this Chapter, therefore, the prehistorical model could be best described as a model of shared life experience, a model that could only accommodate and disseminate small amounts of legal information to a small number of people in a limited geographical area and for a short period of time. As such, the prehistorical model was generally inefficient and unsustainable, especially if we take a maturing society ruled by law as our benchmark.

The historical era provides many interesting examples. Some of the oldest written statues, and therefore evidence of some of the oldest historical models of publication of legal information are the famous Babylonian Code of Hammurabi (1754 BC) and Sumerian Code of Ur-Nammu (c. 2100–2050 BC). The Sumerian legal text is still considered the oldest surviving code on the planet ([11], ch. 7). What is typical of these codes is that they were carved into persistent materials such as stone and were stored and displayed at prominent places in the kingdom so that every subject to the king could come and see the binding law (i.e. key legal information) himself or herself. Practically the same model using physically immovable or only hardly moveable materials as a recorder of legal information was used in the Law of Twelve Desks (*Leges Duodecim Tabularum*) in the early Roman Republic (449 BC). Efficiency of this model was based on the fact that people went to public places where these laws were permanently displayed and where everyone could thus learn them. In comparison with the prelaw period, historical legal information could have been more easily preserved over generations and in principle, everyone could have gotten familiar with them. This did not apply only to authoritative rules but also to rules laid down in written contracts.

Still in the historical era, the advancements of ICTs – for instance the invention and implementation of transportable information carriers such as papyrus, parchment, or paper – made it easier to transform the static model of displayed information into a model where the promulgated laws could have been copied (rewritten) and disseminated across the territory in which they were supposed to be binding. Gradually, handwriting on lighter carriers became more widespread and made it possible to disseminate legal information widely. This could be seen as an advantage but also as a problem because legal information was communicated and disseminated rather chaotically, without a clear publication blueprint. The model was becoming less centralised and although common laws could have been transferred from one place to another simply by transporting the relevant legal document, the local laws could have evolved and often also did evolve in substantially different ways.

One way of dealing with this piecemeal publication model was to collect existing historical laws as they developed locally and provide a comprehensive overview of them. This was, for example, the case of *Corpus Iuris Civilis* which was compiled in the 6th century AD subject to order by Eastern Roman Emperor Justinian I, and was then distributed across the Empire as authoritative evidence of existing laws. We can interpret

this initiative as an attempt to re-gain control over legal information in the Emperor's territory, and also to monopolise the publication of such information by identifying an authoritative source of that information.

Another interesting model appeared in medieval England, shortly before one such formal source of legal information called Magna Carta Libertatum (1215 AD) was agreed to by King John of England. The English model addressed the problem of decentralisation not by collecting and redistributing common (yet locally distinct) laws, but by implementing a specific system of justice. The efficient dissemination of legal information was facilitated by travelling 'itinerant' judges who dispersed justice according to common laws by going from town to town and hearing disputes of individuals. Paradigmatically, the model thus no longer required the royal subjects to travel to London to find out what the law was. The laws (figuratively speaking) travelled with the judges to the king's subordinates. In a sense, this model was very similar to the one of Eastern Roman Empire, except that it was not an *a priori* written collection of rules, but an *a posteriori* deciding judge who travelled around the country.

Even though it was the official authorities who were responsible for the 'travels' of legal information via the court system and therefore could have maintained control over information dissemination, this model was bound to fail at keeping all published common laws comprehensible. This failure was due to both the increasing amount of judgments, as well as the practical *a posteriori* orientation of the publication model which was not focused on gathering comprehensive information about the common law system, but mainly on applying and disseminating particular legal information as widely as possible. No one could have, at the time, followed the work of every single judge across England, and therefore no one could have known how the common law was evolving. In practice, thus, there was a shortage of access to the increasing body of common law. A provisional solution to this problem was then similar to the model of the Eastern Roman Empire: Sir William Blackstone (18th century AD) collected the existing laws and gathered them into systematically structured volumes entitled Commentaries on the Laws of England. These volumes cleared the way for more principled and comprehensive recording and transmitting of laws. The missing *a priori* piece in the existing *a posteriori* English publication model was thus found.

In the days of Blackstone, one very efficient form of ICT was already in place: the printing press. Historical estimates show that the overall "European book production increased enormously [thanks to advancements in printing technologies] from somewhat more than 12,000 manuscripts per century (or 120 per year) from 500 to 700, to more than one billion books published during the eighteenth century (the peak year in the period 500-1799 is 1790, when more than 20 million copies were printed)" ([12], p. 417).

This made it possible to think anew about how to record and publicise legal information, even though books and printed manuscripts were still regarded as luxury goods ([12], p. 440). The potential for developing a new publication model must have been obvious to anyone in the business of publishing.

The development of legal information and its publication models could have taken multiple routes, but a historical coincidence had it that, at the onset of the 19th century, Europe witnessed an important codification movement resulting in the *Code civil des Français* (*Code Napoléon*), the *Austrian Allgemeines bürgerliches Gesetzbuch* (*ABGB*), etc. The preceding advancements in printing and overall increased literacy in Europe ([13], ch. 4) then supported the idea that laws could be written down in a compact form

– a codification – to be distributed and read widely, much like the Bible. And although positive laws, unlike the Bible, proved to be constantly changing, this historical period made a significant step towards a uniform top-down model of printed publication which was very efficient and which still underpins many of the recent models. The newly gained advantage was that if there were any amendments to the original legal text, the legislator could have only issued the amendment and the addressee could then physically attach this amending piece of information to the designated page in his or her own copy of the codification. Such model allowed for an unprecedentedly wide and efficient dissemination of legal information. The model was, on the face of it, also sustainable.

However, at the same time when the historical publication model started adhering to the idea of codifications, printing was still a low scale business. For instance, the Czech translation of the ABGB from 1812 was never printed in sufficient numbers so that Czech citizens could learn the civil code (ABGB) properly. Evidence suggests that printed translations of the ABGB were scarce and their copies quickly sold out ([14], p. 52).

This was a problem only until mid-19th century, though, when a much more productive rotary printing press appeared. The rotary printing press made things easier but, at the same time, it spurred new troubles. On the one hand, the rotary printing technology in combination with the rise of industrial revolution steeply increased the capacity of printing houses in comparison with those using the outdated flat printing technology. As a result, legislators could now deliver printed legal information to virtually everyone in a relatively short time. The scarcity of printed legal information was no longer an issue. On the other hand, the invention of rotary printing press appeared too late to affect the already existing codification-based as well as printing-press-reliant publication model. It only changed one aspect of this model, namely the method or technology of publication.

One small step for publishers, but one giant leap for legislators. That is how we can describe the change that took place in the second half of the 19th century. The new rotary printing technology, this relatively small advancement of publishers' capacity successfully defeated one important presumption that was present in every legislator's publication model until then. The axiomatic presumption was that laws cannot be changed instantly because communication technologies would not allow for efficient publication of such changes. Towards the end of 19th century, however, this axiom was no longer valid. The development of ICTs (i.e. rotary printing technology) removed factual constraints on how frequently legislative changes and new rules can be made and, as we know from history, our law-making authorities took full advantage of this shift. This was the giant leap for legislators. After this change, new rules and amendments are produced like never before, the rule-making increases and leads to what we may now call a hyperhistorical model of publication of legal information [15]. In the upcoming models we must rely on ICTs not only to record and transmit legal information, but also process it, for otherwise we would not be able to navigate ourselves through this emerging 'hyperlaw' and to manage the enormous amount of legal information.

We have already discussed how digitalised legal information is communicated today. Here we can enrich the argument by several important insights from the history of legal publication models. First, Big Data analytics and self-learning algorithms present a technological challenge that is comparable to the invention of writing or printing press and, therefore, can justify an increased interest in re-thinking the current methods of dissemination of legal information. Second, the innovation regarding dissemination of legal in-

formation could be justified if it brings important benefits, including a more efficient and sustainable communication of the relevant legal information. Third, while it can make sense to personalise various aspects of the publication model (including personalisation of the law), the history proves the importance of keeping the law as a system, hence keeping it organised within one model. Historically, this need was manifested in attempts to centralise the publication and dissemination of law. Today, the ICTs allow us to keep authoritative record of legal data even in a decentralised model, but we should not forget that it is a model to serve one system of official state law.

5. Could Personalised Dissemination of Legal Information Be the Right Change?

We can see that the digital challenge compels us to re-think the current publication model of law in order to facilitate more efficient and sustainable communication of legal information. As such, new ICTs and Big Data can be clearly used as a force for good [16]. With an ICTs- and Big Data-powered personalised dissemination of legal information, the relevant law could reach more addressees, and this could lead to an overall increase in our knowledge of the law. Without doubt this amounts a highly valuable good. Besides, the proposed innovation could co-exist with the existing system of authoritative publication of law, which would not undermine the law as a unified system. Yet from a policy perspective, we must ask a more pragmatic question: Would this change be not too costly?

The issue of costs can be dealt with at various levels. We could compare the overall benefits of the envisaged new system with the overall costs of running this system, but then we would probably run into a question whether it is not too costly to have any legal system at all. Given that we have laws and legal systems, we should probably be comparing the costs of the present system of access to legal information with the costs of the suggested personalised dissemination of legal information. We should be comparing these costs in relation to the joint objective of those two alternatives: the costs of efficient and sustainable communication of legal information.

On this level of comparison, the policy question boils down to the question of whether the economic costs of developing and running the suggested system of personalised dissemination of legal information would be lower or higher than money paid by every law-abiding citizen or company for the provision of professional legal services that currently facilitates access legal information. Without empirical data and clear methodology, this question is very hard to answer – especially since the costs of legal services differ significantly across countries and even within the countries. But I doubt many lawyers would bet their money on the current system as the cheaper alternative. In fact, personalised dissemination of legal information could also be cost-efficient for specialists who could save some transaction costs on researching the existing law.

Overall, the suggested method of dissemination of legal information could not only bring more efficient societal organisation and sustainable social cohesion achieved via the increased knowledge of the law, but it could bring down the total costs of access to legal information. Personalised dissemination could close the gap between those who should know the law and those who could access it. The witty idea about this innovative proposition is that legal information would access people, not vice versa. This could not only reduce costs but also overcome the traditional barrier in people's laziness and

comfortableness. The new ICTs could communicate the law actively themselves. If we want to use legal information to steer public knowledge, to educate, to unite, and better organise ourselves (eg in the face of global challenges), this could be the way forward.

References

[1] Janeček, V. (2019). Digitalised Legal Information: Towards a New Publication Model. In Öhman, C. & Watson, D. (Eds.). *The 2018 Yearbook of the Digital Ethics Lab*. Springer.

[2] Biasiotti, M. A. & Faro, S. (Eds.) (2011). *From Information to Knowledge: Online Access to Legal Information-Methodologies, Trends and Perspectives*. IOS Press.

[3] Bench-Capon, T. et al. (2012). A History of AI and Law in 50 Papers: 25 Years of the International Conference on AI and Law. *Artificial Intelligence and Law, 20*(3), 215-319.

[4] Greenleaf, G., Mowbray, A. & Chung, P. (2018). Building Sustainable Free Legal Advisory Systems: Experiences from the History of AI & Law. *Computer Law & Security Review, 34*(2), 314-326.

[5] Busch, C. & De Franceschi, A. (2018). Granular Legal Norms: Big Data and the Personalization of Private Law. In Mak, V., Tai, E. T. T. & Berlee, A. (Eds.). *Research Handbook in Data Science and Law*. Edward Elgar Publishing.

[6] Casey, A. J. & Niblett, A. (2016). Self-Driving Laws. *University of Toronto Law Journal, 66*(4), 429-442.

[7] Ben-Shahar, O. & Porat, A. (2016). Personalizing Negligence Law. *New York University Law Review, 91*(3), 627-688.

[8] Porat, A. & Strahilevitz, L. J. (2014). Personalizing Default Rules and Disclosure with Big Data. *Michigan Law Review, 112*, 1417-1478.

[9] BBC (2018). *Cambridge Analytica: Closure 'Will Not Stop Investigation'*, https://www.bbc.co.uk/news/uk-43985186.

[10] Charpin, D. (2010). *Writing, Law, and Kingship in Old Babylonian Mesopotamia* (trans: Todd, J. M.). University of Chicago Press.

[11] Kramer, S. N. (1958). *History Begins at Sumer*. Thames & Hudson.

[12] Buringh, E. & Van Zanden, J. L. (2009). Charting the "Rise of the West": Manuscripts and Printed Books in Europe, a Long-Term Perspective from the Sixth through Eighteenth Centuries. *The Journal of Economic History, 69*(2), 409-445.

[13] Eisenstein, E. L. (2012). *The Printing Revolution in Early Modern Europe*, 2nd ed., Cambridge University Press.

[14] Janeček, V. (2017). *Kritika Právní Odpovědnosti*. Wolters Kluwer.

[15] Floridi, L. (2012). Hyperhistory and the Philosophy of Information Policies. *Philosophy & Technology, 25*(2), 129-131.

[16] Taddeo, M. & Floridi, L. (2018). How AI Can Be a Force for Good. *Science, 361*(6404), 751-752.